Title of Invention: Fault-Tolerant Server Architecture For Collaborative Computing et No.: M-8858 US Inventors: Min Zhu, Serial No. 09/752,376 1/27 -110B -110C -110A 110D <u>130</u> 120A--120B 100 FIG. 1A *100* (Prior Art) 110A -110B -110C ~110D

FIG. 1B (Prior Art)

120A

-120B

# *2*/27

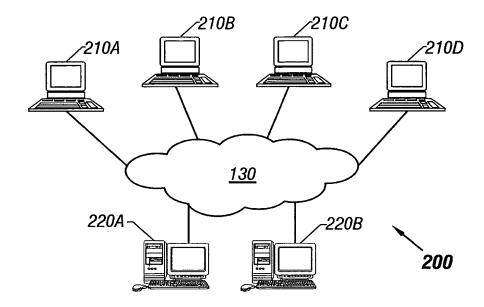


FIG. 2A

*200* 

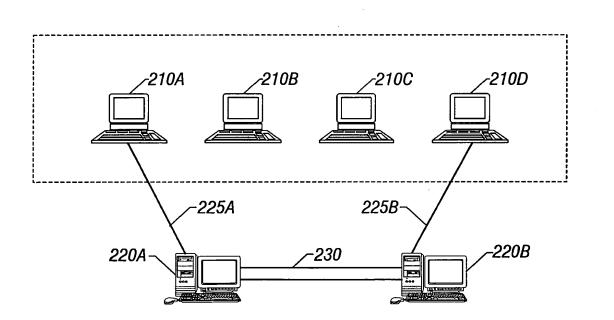


FIG. 2B

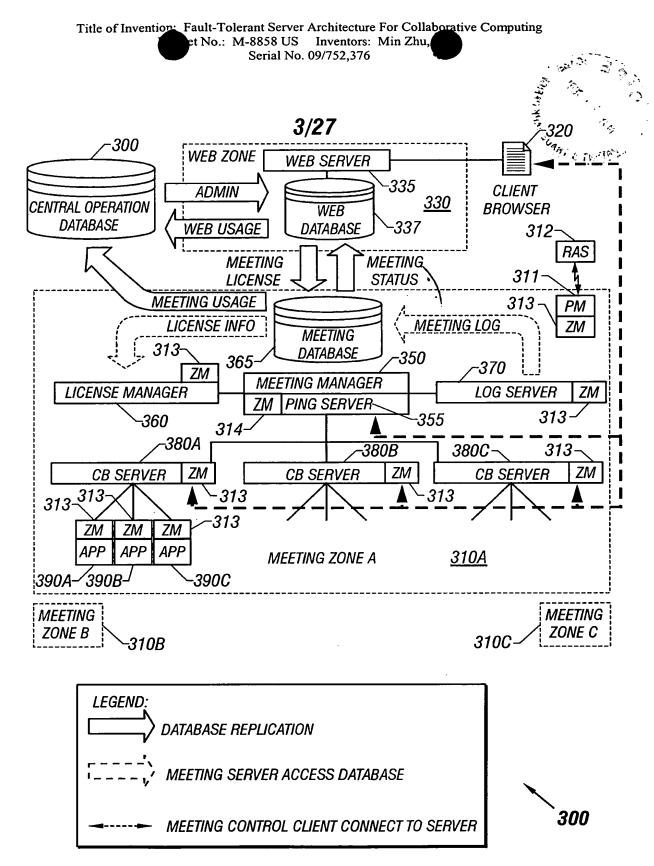
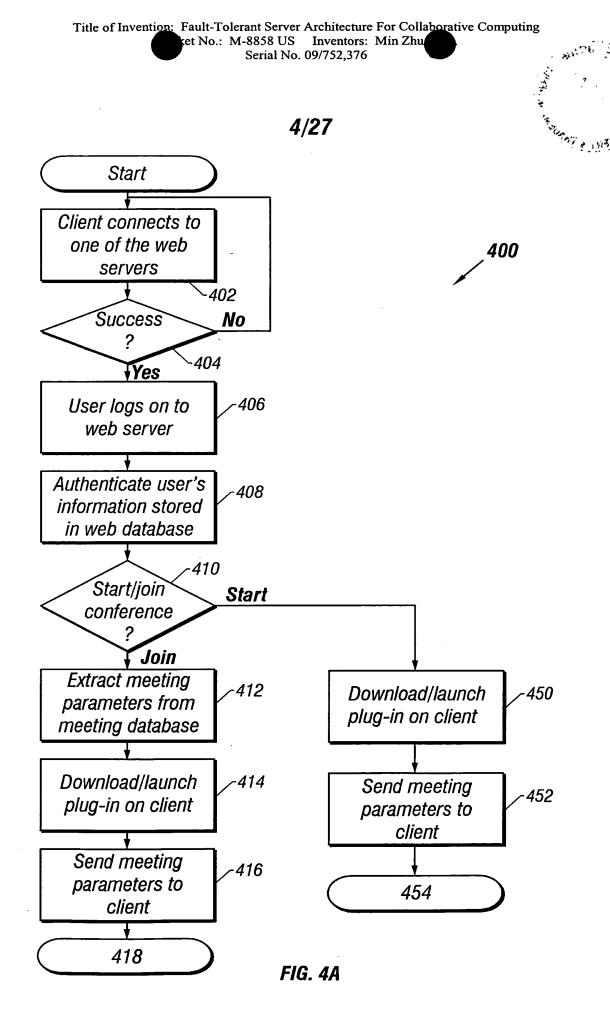
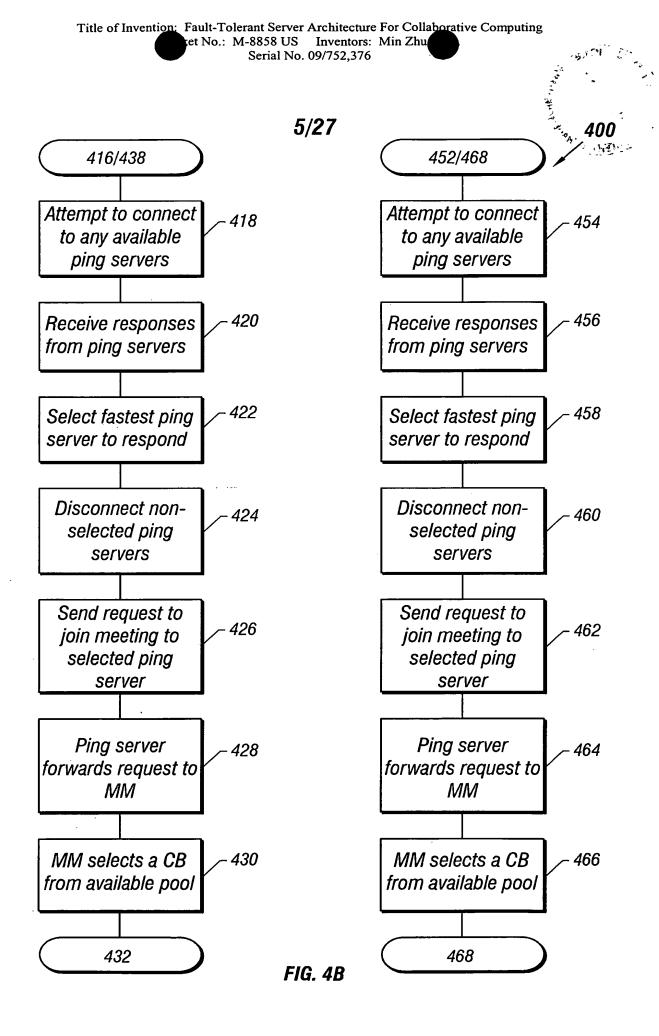


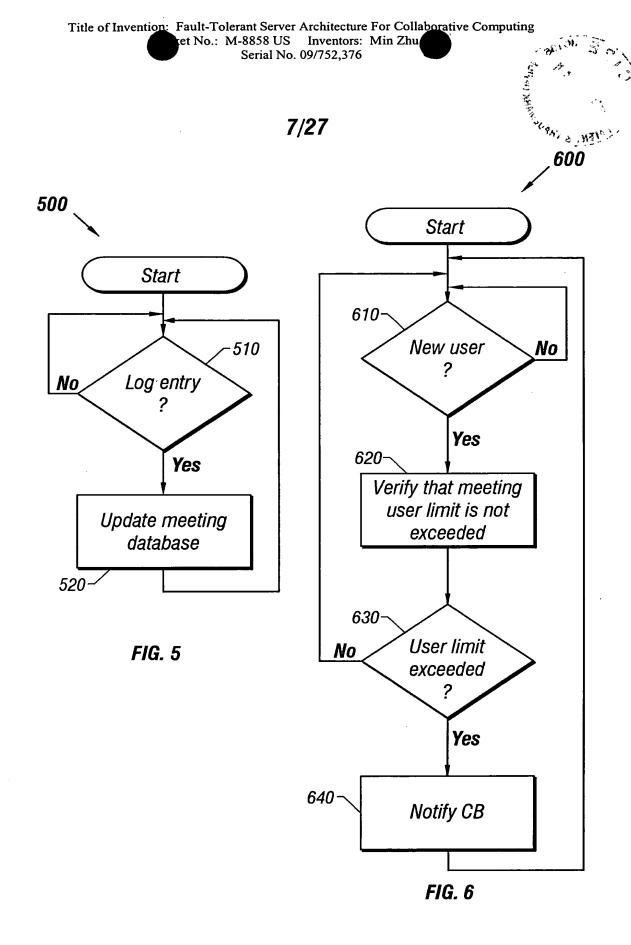
FIG. 3

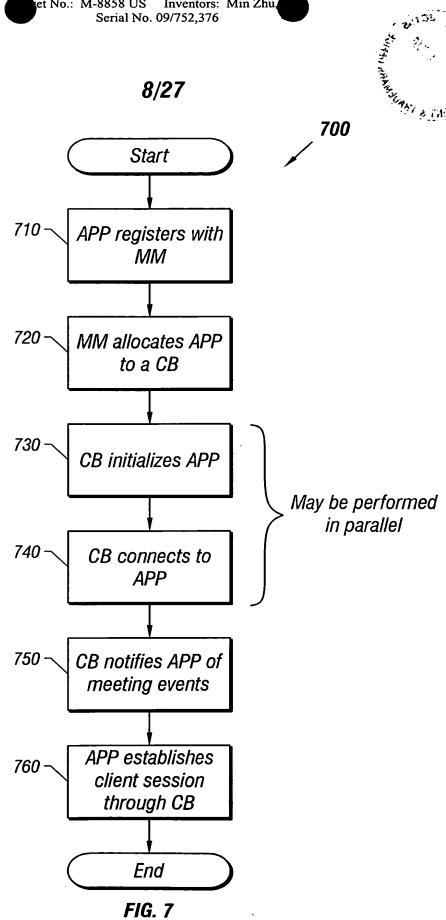


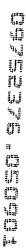


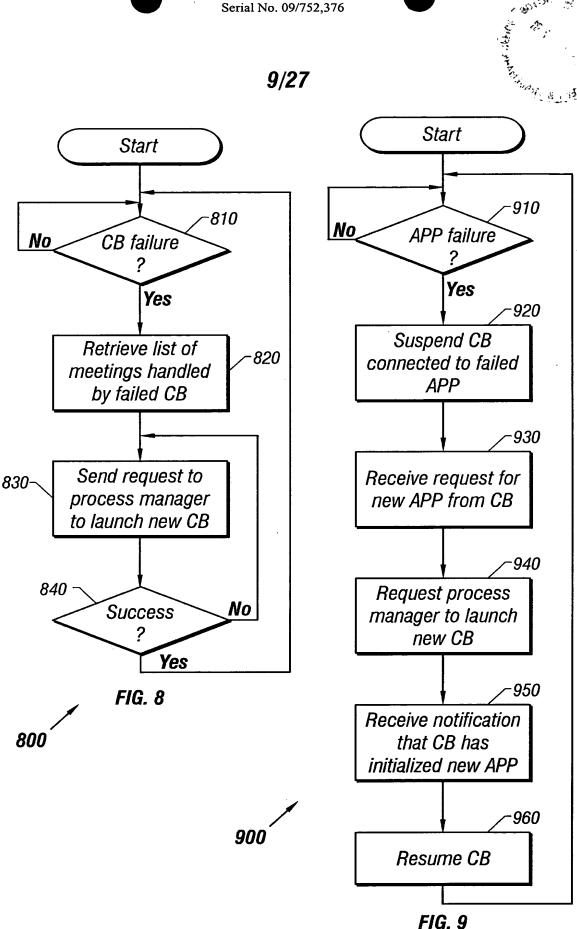
et No.: M-8858 US Inventors: Min Zhu Serial No. 09/752,376 6/27 466 430 CB queries other 432 CBs to find CB 468 hosting meeting MM receives No meeting 434 CB connects to CB confirmation hosting meeting from CB 436 CB replicates 454 meeting data Yes locally MM sends 470 confirmation to 438 ping server MM receives No meeting confirmation Ping server sends from CB 472 meeting confirmation to 418 client Yes MM sends 440 confirmation to End ping server Ping server sends 442 meeting confirmation to 400 client End FIG. 4C

Title of Invention: Fault-Tolerant Server Architecture For Collaborative Computing









et No.: M-8858 US Inventors: Min Zhu Serial No. 09/752,376 10/27 Start Start 1110 MM failure Yes -1120 1010 Process manager License/log No launches new MM server failure -1140 Yes Stand-by MM broadcasts election 1020 message Send request to -1150 process manager Select new primary to launch new MM license/log server -1160 Server connect to **PMM** 1030 -1170 No Success Servers register with PMM -1180 Yes PMM recovers server structure **1000** FIG. 10 -1190 CBs report to PMM -1195 1100 PMM recovers conference information FIG. 11

Title of Invention: Fault-Tolerant Server Architecture For Collaborative Computing

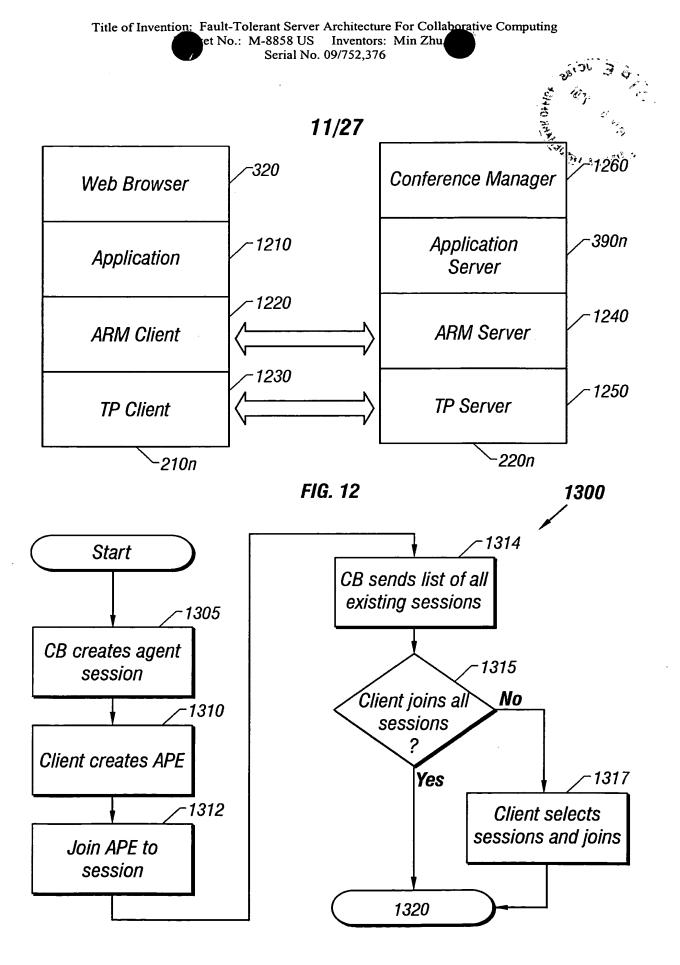
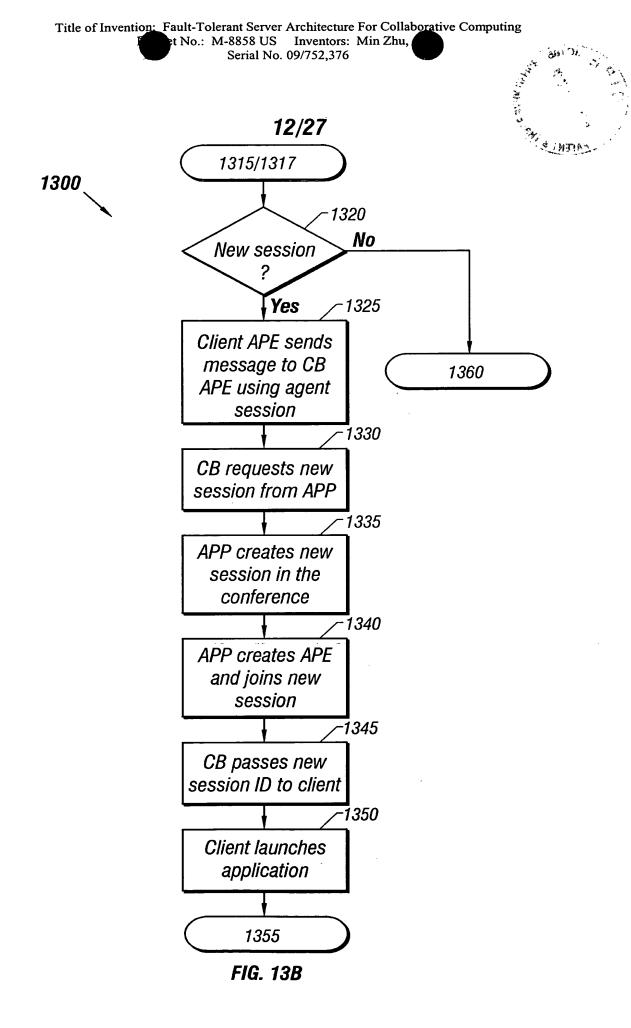


FIG. 13A



Title of Invention: Fault-Tolerant Server Architecture For Collaborative Computing et No.: M-8858 US Inventors: Min Zhu, Serial No. 09/752,376 13/27 1350 New application 1355 creates APE and joins new session 1320 1360 Client joining session No Yes -1370 Request joining session End FIG. 13C

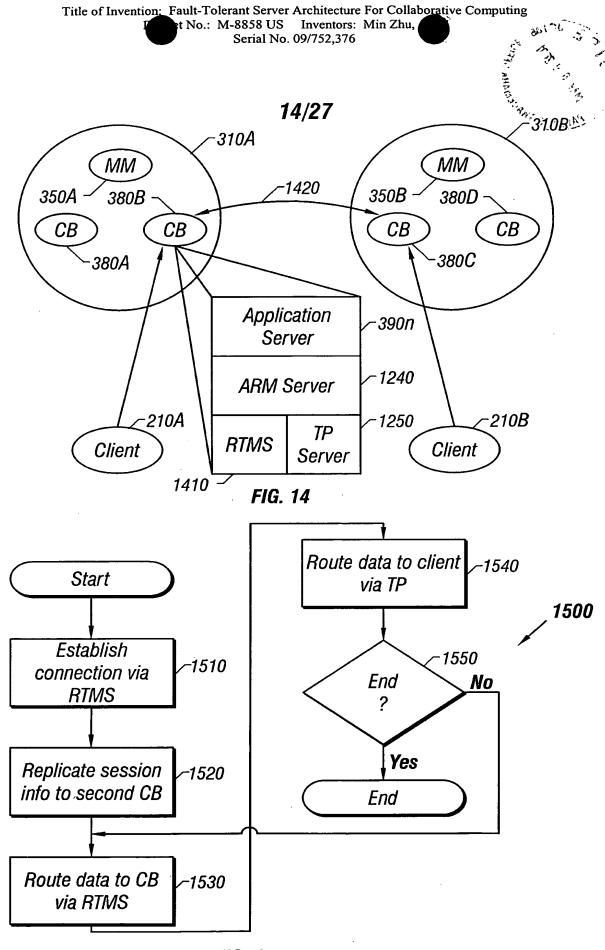


FIG. 15

*15/27* Start 1600 1605 Assign unique ID to each page Send page ID and 1610 content to ARM server Send IDs and data 1615 over shared data queue Presenter sends 1620 first page ID to all clients Clients request 1625 data through shared data queue 1630 CBs send data to 1665 clients All shared data received No - 1635 1655 No Jump page Yes 1660 Notify Docview server Yes 1640 1665 FIG. 16A

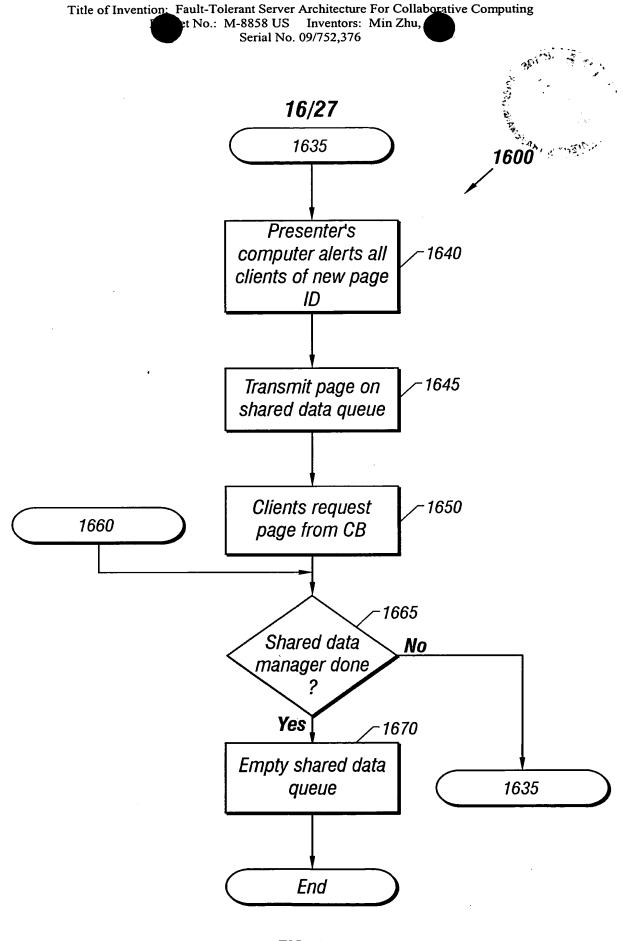
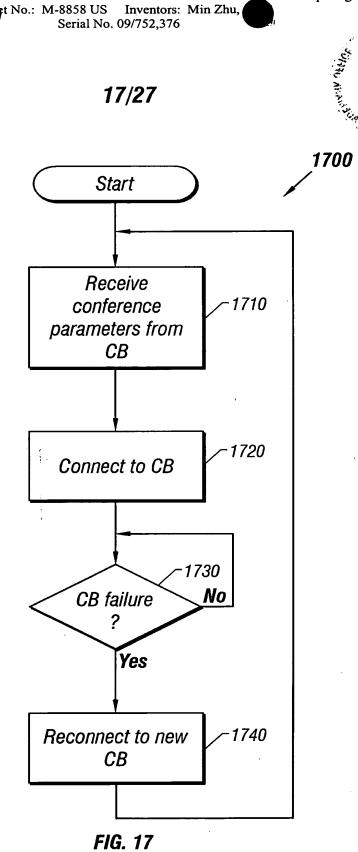


FIG. 16B



t No.: M-8858 US Inventors: Serial No. 09/752,376

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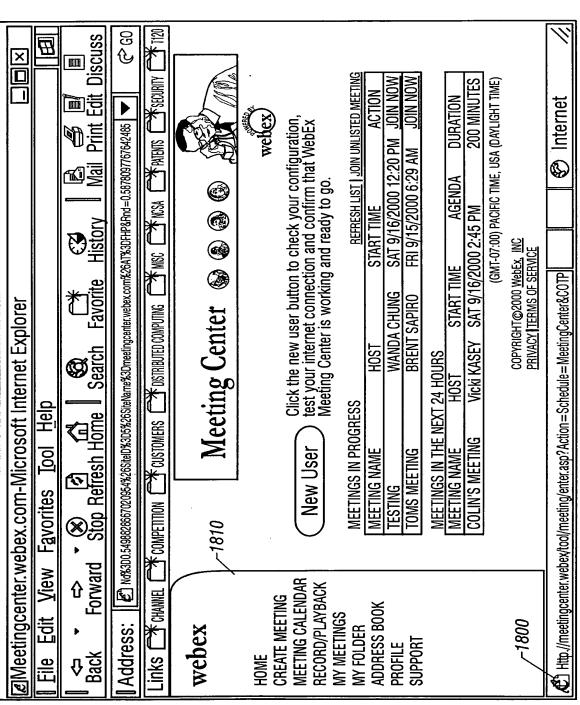


FIG. 18A

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Serial No. 09/752,376

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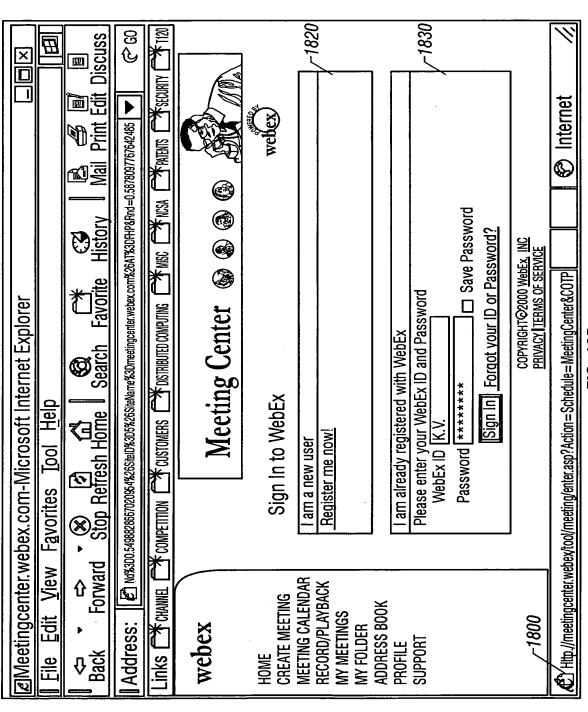


FIG. 18B

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Serial No. 09/752,376

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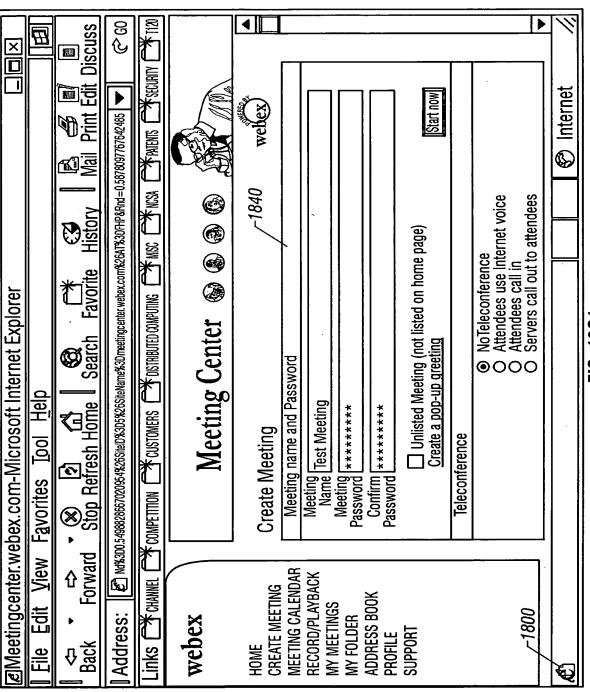


FIG. 18C1

Title of Invention: Fault-Tolerant Server Architecture For Collaborative Computing et No.: M-8858 US Inventors: Min Zhu, Serial No. 09/752,376

#### 21/27

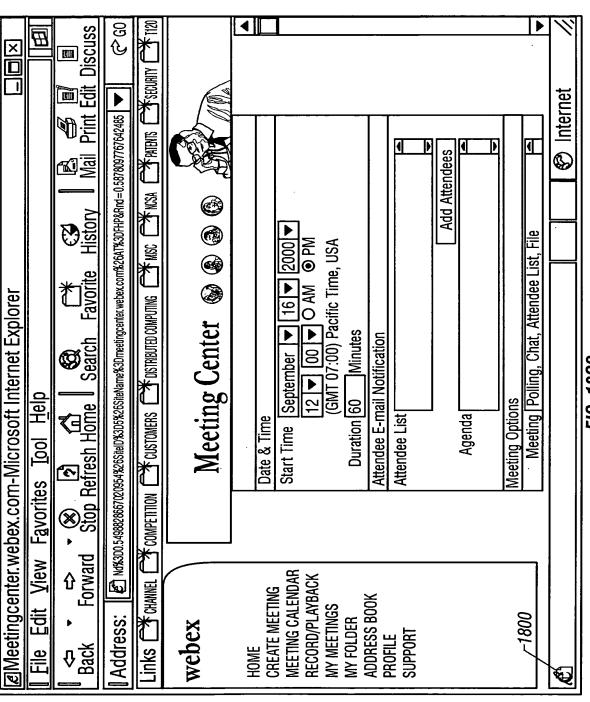


FIG. 18C2

Title of Invention: Fault-Tolerant Server Architecture For Collaborative Computing et No.: M-8858 US Inventors: Min Zhu, Serial No. 09/752,376

#### 22/27

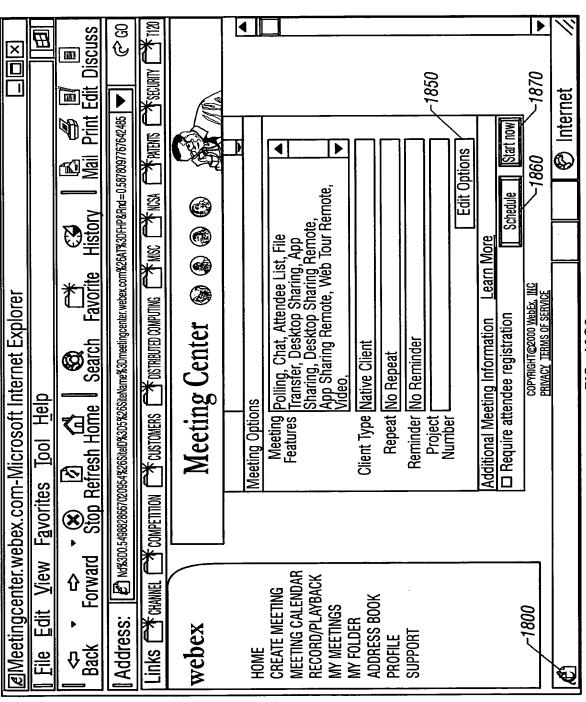


FIG. 18C3

Title of Invention: Fault-Tolerant Server Architecture For Collaborative Computing et No.: M-8858 US Inventors: Min Zhu.
Serial No. 09/752,376

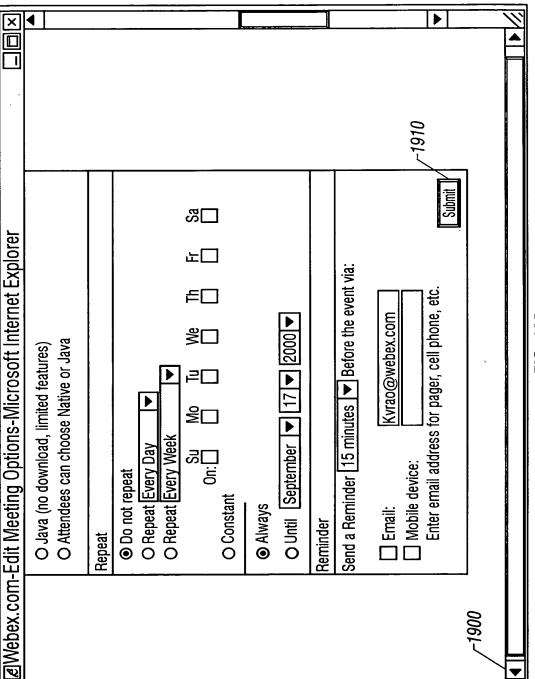
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7G. 19A

et No.: M-8858 US Inventors: Min Zhu Serial No. 09/752,376

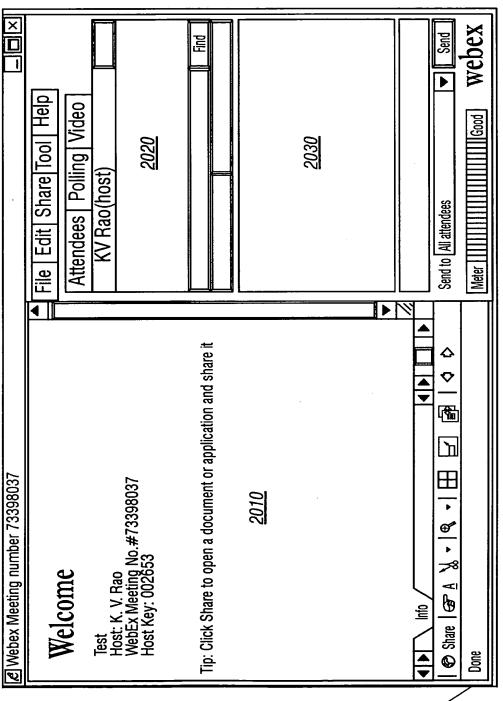
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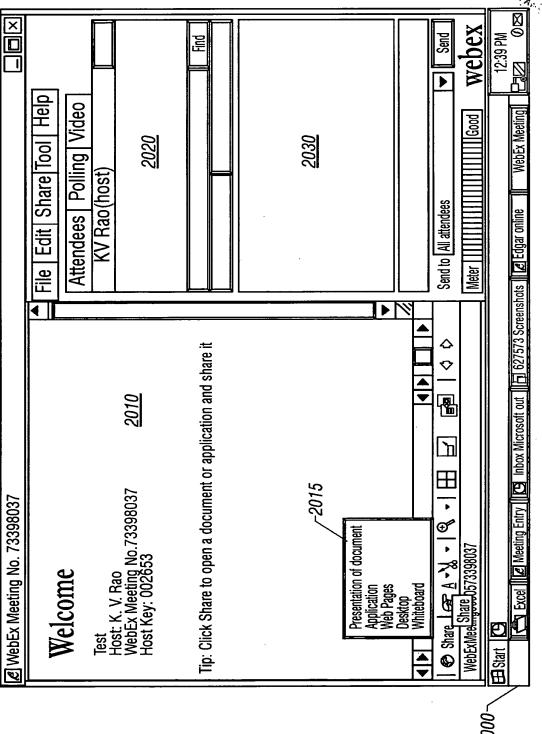


FIG. 20B

Serial No. 09/752,376

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### 27/27

